National Institute of Environmental Health Sciences

Assessment of big floods in the Eastern Black Sea Basin of Turkey

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Abstract:

In this study, general knowledge and some details of the floods in Eastern Black Sea Basin of Turkey are presented. Brief hydro-meteorological analysis of selected nine floods and detailed analysis of the greatest flood are given. In the studied area, 51 big floods have taken place between 1955-2005 years, causing 258 deaths and nearly US $500,000,000 of damage. Most of the floods have occurred in June, July and August. It is concluded that especially for the rainstorms that have caused significantly damages, the return periods of the rainfall heights and resultant flood discharges have gone up to 250 and 500 years, respectively. A general agreement is observed between the return periods of rains and resultant floods. It is concluded that there has been no significant climate change to cause increases in flood harms. The most important human factors to increase the damage are determined as wrong and illegal land use, deforestation and wrong urbanization and settlement, psychological and technical factors. Some structural and non-structural measures to mitigate flood damages are also included in the paper. Structural measures include dykes and flood levees. Main non-structural measures include flood warning system, modification of land use, watershed management and improvement, flood insurance, organization of flood management studies, coordination between related institutions and education of the people and informing of the stakeholders.

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Resource Description

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

Extreme Weather Event

Extreme Weather Event: Flooding

Geographic Feature:

resource focuses on specific type of geography

Other Geographical Feature

Other Geographical Feature : Basin

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Country

Other Asian Country: Turkey

Health Co-Benefit/Co–Harm (Adaption/Mitigation): ☑

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Injury

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type: ☑

format or standard characteristic of resource

Research Article

Resilience: ☑

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content